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CLAIMS

1. A specimen holder for an electron microscope, comprising a rod-shaped part (2), which is provided near one end with a tip (3), which tip (3) is arranged to receive a specimen, the rod-shaped part (2), in use, extending with at least the tip (3) into the electron microscope, held by clamping means (5) present in the electron microscope, wherein first temperature control means (10) are provided to control the temperature of the rod-shaped part (2) and/or the clamping means (5), such that this rod-shaped part (2) and the clamping means (5) substantially have the same temperature, at least at the location of their contact surfaces.
- 10 2. A specimen holder according to claim 1, wherein the first temperature control means (10) comprise a cooling element and/or a heating element.
3. A specimen holder according to claim 1 or 2, wherein second temperature control means are provided to control the temperature of the tip (3), at least a part of the tip (3) arranged to receive the specimen, the second temperature control means comprising cooling means and/or heating means.
- 15 4. A specimen holder according to any one of the preceding claims, wherein the first temperature control means (10) are provided around at least a part of the rod-shaped part (2).
- 20 5. A specimen holder according to claim 4, wherein at least a part of the first temperature control means (10) is arranged near the tip (3) of the specimen holder (1).
6. A specimen holder according to any one of the preceding claims, wherein the rod-shaped part (2), in use, is held in at least two spaced apart 25 positions by the clamping means (5), the first temperature control means (10) being arranged to keep the rod-shaped part (2), at least the outer

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surface thereof, between the holding positions at the same temperature as the temperature of the clamping means (5).

7. A specimen holder, in particular according to any one of the preceding claims, wherein between the tip (3) and the outer surface of the rod-shaped part (2) a substantially shell-shaped connecting element (8) is provided, manufactured from a relatively stiff, impact resistant, thermally insulating material, openings (9) being provided in the shell.

8. A specimen holder according to claim 7, wherein the openings (9) of the shell-shaped connecting element (8) are such that the heat conduction is at least less than one tenth of a comparable structure without openings, preferably less than one hundredth.

9. A specimen holder according to claim 7 or 8, wherein the shell-shaped connecting element (8) is manufactured from titanium.

10. A specimen holder according to any one of the preceding claims, in which the first and/or the second temperature control means comprise a temperature sensor.

11. A specimen holder according to claim 10, wherein the temperature sensor comprises a thermo couple (11).

12. A specimen holder according to any one of the preceding claims, wherein the tip (3) comprises a frame (20) and a platform (24), provided with a recess (25) to receive the specimen, which platform (24) is suspended by means of a subframe (22) so as to be tiltable in the frame (20), which frame (20) and subframe (22) are manufactured from two different materials having a different expansion coefficient and are dimensioned and positioned relative to each other such that expansion or shrinkage of the frame and the subframe outweigh each other as a result of temperature changes occurring in the tip (3) during use, such that a specimen placed on the platform (24) during use is substantially not displaced.

13. A specimen holder according to claim 12, wherein the frame (20) is manufactured from tungsten and the subframe (22) from aluminum.

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14. A specimen holder according to any one of the preceding claims, wherein the rod-shaped part (2) is manufactured from a material which has a relatively good heat conduction and a relatively low thermal expansion coefficient and is preferably not magnetic.

5 15. An assembly of an electron microscope and a specimen holder (1), wherein the electron microscope is provided with clamping means (5) for holding the specimen holder (1) in the electron microscope, which electron microscope comprises third temperature control means to keep the clamping means (5) at a desired temperature and the specimen holder (1) comprises 10 first temperature control means (10) to keep at least a part of the specimen holder (1) being in contact with these clamping means (5) substantially at the same temperature as the clamping means (5).

16. A method for reducing thermal drift in an electron microscope, comprising the following steps:

15 - placing a specimen on the specimen holder (1);
- fixing the specimen holder (1) in the electron microscope in clamping means (5) suitably provided in the electron microscope;
- adapting the temperature of the specimen holder (1) and/or the clamping means (5), so that both obtain and keep substantially the same 20 temperature.